Remarks

The Examiner is thanked for the Official Action dated March 31, 2003. The Examiner's response has been carefully studied, and the arguments advanced here are in response to the Examiner's comments and actions.

Claims 1-4, 11, 14, and 15, were rejected under 35 U.S.C. 103(a) as being unpatentable over the combined teachings of JP '716, DE '811, and EP 218. Claims 5, 8, and 9 were rejected under 35 U.S.C. 103(a) as being unpatentable over the prior art as applied to claim 1, and further in view of FR 2717126, or Mehdi (4,616,484), or Dolza (2,801,827).

In the above Office Action, the examiner requested a copy of FR 2717126. A copy of the requested document is provided as an attachment to this response.

The basic components of automotive heating and air conditioning systems (condensers, evaporators, compressors, heat exchangers, etc.) are well known in the art. There are multiple valid patents, such as those referenced in the application, which arrange these components in unique configurations as a means of achieving superior results over the prior art.

The present invention seeks to arrange these components in such a manner as to improve heating and air conditioning efficiency and effectiveness, as well as to save space and reduce the material required to construct the systems. While the individual components may be well known in the art, it is not obvious or well known to combine the components in the manner suggested in the application.

With regard to claims 1-5, the examiner states that "to have plumbed the two evaporators shown in figures 1 or 5 of JP '716 in the manner shown in DE '811 to a

DE '811 to a single compressor would have been obvious to one of ordinary skill to advantageously permit humidity regulation as taught by DE'811 in Figures 1-3." In fact, what would have been obvious would have been to make the two evaporators a part of two independent circuits. It would not have been obvious to make the evaporators a part of a single unique circuit whereby the first evaporator serves as a cold source, and the second evaporator is connected to a switching means for making the fluid flow either only in the first evaporator, or in the two evaporators, depending on the amount of cooling required, the first and second evaporators being traversed one after the other at least partly by an air flow to be cooled.

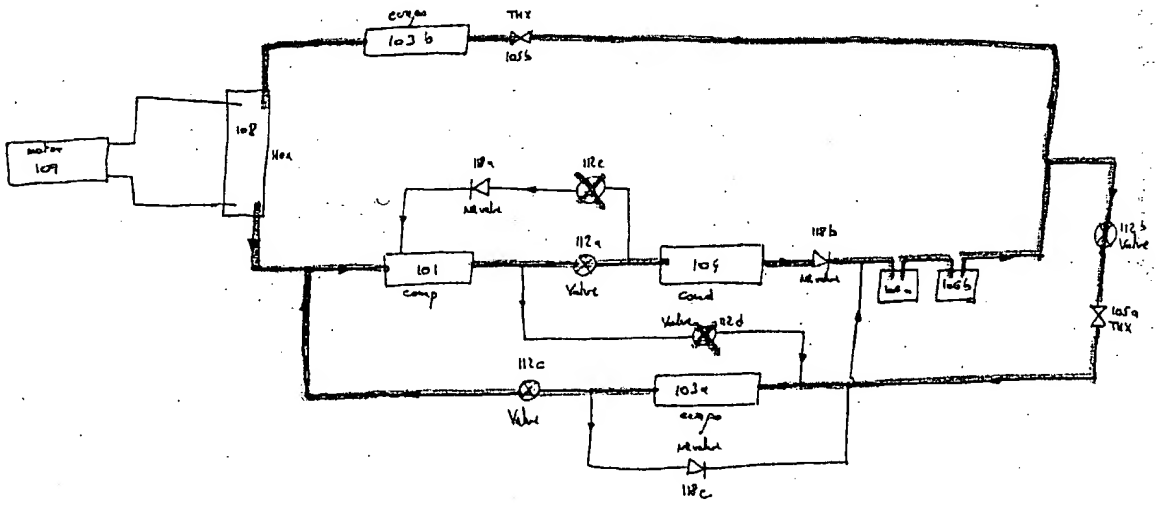

Figure 1 - cooling operation according to DE'811

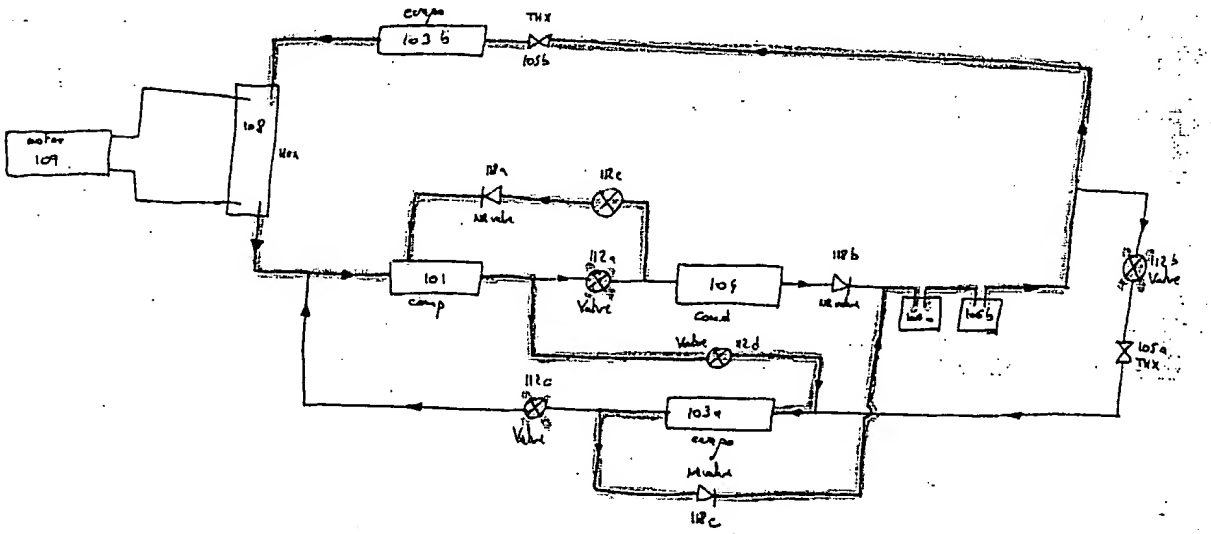

Figure 2 - heating operation according to DE'811

An examination of the above circuits clearly indicates that there is no switching means for selectively routing fluid flow between both a first (103a) and/or second (103b) evaporator depending on the required cooling power, as specifically claimed in claim 1 of the present invention, and as disclosed as a significant characteristic of the invention. As indicated on page 10, lines 1-10 of the DE '811 English translation, the function of the solenoid valves 112a-112e is to switch between the DE '811 heating circuit and the cooling circuit. The function of solenoid valve 112b is not to selectively stop the flow of coolant to the first evaporator 103a while letting coolant flow continue to flow to the second evaporator 103b, depending on the required cooling power, as indicated by the examiner in the previous rejection. Consequently, even if the evaporators shown in JP '716 were re-plumbed as described in DE '811, the revised configuration would not satisfy the limitations of claim 1.

Further, JP '716 and DE '811 are complex multi-component systems. There is nothing in either patent that suggests that it would have been obvious to re-plumb the evaporators in JP '716 in the manner shown in DE '811, as suggested in the Examiner's rejection. On the contrary, both systems are designed to encompass all the individual components required to allow them to function as stand-alone integrated systems. Re-plumbing a system is not modular type of modification, or one that would be obvious in combining inventions. An inventive step is clearly required to create the system disclosed in the claimed invention.

To reject claims 5, 8, and 9, the Examiner suggests further modifying the fluid circuit disclosed in DE '811, as combined with JP '716 and EP '218, to include the control circuts disclosed in FR '126, Mehndi, or Dolza. While some aspects of the

control circuits exist in the references, they do not exist in combination with the specific compound heat exchanger disclosed in the invention, and in the configuration described in the invention. Further, there is no suggestion in any of the references that the reference systems can be combined with a system specifically configured as suggested in the application.

The Examiner's assertion that it would be obvious to modify JP '716 in view of DE '811, which would be obviously further modified in view of EP '218, which would be obviously modified even further by FR '126, Mehdi, or Dolza, is incorrect. The Examiner's assumption of obviousness is particularly dubious since all the references (except EP '218) comprise fully integrated systems, and not individual components. To modify these references to achieve the limitations of the present invention would clearly result from hindsight reconstruction, which is not permitted. MPEP 2143.01 specifically states that even if the references can be combined (which is questionable in this case), that fact alone does not render the resultant combination obvious unless the references suggest the desirability of the combination, citing *In Re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990). The examiner may not, because of doubt that the invention is patentable, resort to unfounded assumption or hindsight reconstruction to supply deficiencies in the factual basis for the rejection. See In re Warner, 379 F.2d 1011, 1017, 154 USPQ 173,178 (CCPA 1967). There is no suggestion to support the Examiner's assertion that it would be obvious to combine these references.

With regard to the compound heat exchanger of claims 1 and 14-20, the examiner points Applicant to page 6, lines 12-19 of the specification, and notes that Applicant refers to EP '218 as type of heat exchanger used in the proposed invention. Clearly,

Applicant readily acknowledges that this type of heat exchanger exists. However, although basic heat exchangers such as '218 exists in the prior art, an individual compound heat exchanger unit, or bank of tubes with a u-shape configuration, as described in claim 15, is not used to combine refrigerant fluid with heat carrying fluid as described in the present invention, with the integral combination used to heat or cool the passenger compartment of a motor vehicle. Further, from the provided references, it would have not been obvious to make the combination. The invention, as described in the application, represents a distinct advantage and progress over the prior art. Although JP '716 and DE '811 appear to show a heat exchanger in series with two evaporators, the reference lacks the additional limitations described in claims 14 and 15 that specifically disclose the alternating tube-type compound heat exchanger of the present invention. Further, there is no indication that the evaporators and radiator of the prior art should be combined into a single component, as suggested by the invention. Although EP '218 describes, in general, a basic heat exchanger, there is no specific indication that it could be used with the other components that comprise the invention. The combination described in the invention is superior because of its increased effectiveness, efficiency, flexibility and more compact design. Nothing in the prior art specifically suggests this combination, particularly with this level of detail, and with these specific limitations.

Claims 2-17 and 20 are dependent on independent claim 1. Since independent claim 1 is allowable, it is respectfully submitted that all outstanding issues are resolved and this application is in condition for allowance. In view of the current arguments, it is also submitted that independent claim 18 and dependent claim 19 are also allowable. Should the Examiner believe that additional discussion would advance the prosecution of

the present application, or the Examiner has thoughts or ideas that are mutually beneficial, the Examiner is invited to contact the undersigned at the local telephone number listed.

Respectfully submitted,

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